

CLAIMS

What is claimed is:

1. A positioning and aiming assembly for use with an x-ray source, comprising:

at least one aiming arm 6 connectable to a holder 8 for image data receiving means 9; and

at least one handle 5, 5', said handle 5, 5' including means for connecting it to said at least one aiming arm 6.

2. An aiming assembly according to claim 1, wherein said assembly is a part of a system including an intra oral x-ray device which is to be positioned with respect to an intra oral image data receiving means 9, which x-ray device 1 includes an x-ray source being placed in a housing 4, said housing 4 preferably including or having means whereto an elongated x-ray collimator 41 and/or some other accessories may be attached, the said at least one aiming arm 6 being connectable to the said handle 5 at, or at the proximity of its first end, and to a holder 8 for the said image data receiving means 9, either directly or via a bite-block 7, at its second end.

3. An aiming assembly according to claim 2, wherein the said at least one handle 5, 5' is connected to the aiming arm 6 via means 54, 55 by which it may be released or moved along the aiming arm 6.

4. An aiming assembly according to claim 3, wherein the assembly includes means by which the said x-ray source may be brought repeatedly into at least one constant distance position and/or into known distance positions from the said image data receiving means.

5. An aiming assembly according to claim 4, which includes means whereby the said at least handle 5, 5' may be connected to at least one fixed position on the aiming arm 6

and/or means whereby the said at least one handle 5, 5' may be moved along the aiming arm 6, which includes indicia, such as a scale, showing the position of a handle 5 attached to it.

6. An aiming assembly according to claim 4, wherein there are arranged handle position indicia on the x-ray tube housing 4 or on an accessory, such as a collimator 41, attached thereto.

7. An assembly according to claim 4, wherein the x-ray tube housing 4, or any of the parts fixed to it, includes at least one connector or contact element for the said at least one handle 5, 5'.

8. An assembly according to claim 7, wherein the said connector or contact element is an integral part of an aiming ring 10 connectable to an elongated collimator 41, in turn connectable to the said x-ray tube housing 4.

9. An assembly according to claim 8, wherein the said aiming ring 10 is made connectable to the said collimator 41 in various orientations for supporting various imaging modes.

10. An assembly according to claim 9, wherein the said at least one handle 5, 5' includes two connection means 54, 55 for the said at least one aiming arm 6, intended for horizontal and vertical orientations of the image data receiving means, correspondingly.

11. An assembly according to claim 9, wherein the said at least one handle 5, 5' is provided with indicia 52, 53 of which of the said connection means 54, 55 is designed for horizontal and which for vertical orientation of the image data receiving means 9.

12. A positioning and aiming assembly for use with an x-ray source, comprising

an intra oral x-ray device which is to be positioned with respect to an intra oral image data receiving means,

which x-ray device 1 includes an x-ray source being placed in a housing 4, said housing 4 preferably including or having means whereeto an elongated x-ray collimator 41 and/or some other accessories may be attached,

at least one aiming arm 6 connectable to a holder 8 for image data receiving means 9; and

at least one handle 5, 5', said handle 5, 5' including means for connecting it to said at least one aiming arm 6, and

a construction which is able to create at least two contact points, at least one contact line and /or at least one contact surface with a surface of the x-ray source housing 4, with that of the collimator 41 and/or with any other part attached to the x-ray source.

13. An assembly according to claim 12, wherein the said contact construction of a handle 5, 5' includes a curved surface 51 with a curvature equal to that of a surface of the x-ray source housing, or a collimator or any other part attached thereto.

14. An assembly according to claim 13, wherein the said curved surface 51 is such that when brought into contact with its intended counter surface, they form an area of an elongated rectangle in direction perpendicular to that of the x-ray beam produced by the said x-ray source.

15. An assembly according to claim 14, wherein the said contact construction of a handle 5, 5' includes at least two pins or the like, and the x-ray source housing, or a part attached thereto, corresponding wholes or recesses.

16. An assembly according to claim 15, wherein the said contact construction creates a three-point connection between at least one handle 5, 5' and the x-ray source housing, or a part attached thereto.
17. An assembly according to claim 16, wherein there are attached two handles 5 to the aiming arm 6, at or at the proximity of the said second end of it.
18. An aiming assembly according to claim 12, wherein the said at least one handle 5, 5' is connected to the aiming arm 6 via means 54, 55 by which it is not fixed and may be moved along the aiming arm 6.
19. An aiming assembly according to claim 18, wherein the said connection means 54, 55 include at least one hollow-through in the handle 5, 5' with appropriate dimension with respect to that of the aiming arm 6.
20. An aiming assembly according to claim 12, wherein the assembly includes means by which the said x-ray source may be brought repeatedly into at least one constant distance position and/or into known distance positions from the said image data receiving means.
21. An assembly according to claim 20, wherein the x-ray tube housing 4, or any of the parts fixed to it, includes at least one connector or contact element for the said at least one handle 5, 5'.
22. An assembly according to claim 21, wherein the said connector or contact element is an integral part of an aiming ring 10 connectable to an elongated collimator 41, in turn connectable to the said x-ray tube housing 4.
23. An assembly according to claim 22, wherein the said aiming ring 10 is made connectable to the said collimator 41 in various orientations for supporting various imaging modes.

24. An assembly according to claim 12, wherein the said at least one handle 5, 5' includes two connection means 54, 55 for the said at least one aiming arm 6, intended for horizontal and vertical orientations of the image data receiving means, respectively.

25. An assembly according to claim 12, wherein the said at least one handle 5, 5' is provided with indicia 52, 53 of which of the said connection means is designed for horizontal and which for vertical orientation of the image data receiving means 9.

26. A method for positioning and aiming an x-ray source with respect to a position of an intra oral image data receiving means, where the image data receiving means is attached to an aiming arm used as an aid in aiming the x-ray beam to the image data receiving means, wherein the aiming arm is further equipped with at least one handle, which handle is used as a gripping part in maneuvering the aiming arm – sensor holder assembly and as a fixed or an adjustable reference element with respect to the distance from it to the image data receiving means.

27. A method according to claim 26, wherein the said at least one handle attached to the said aiming arm and is used to achieve a desired x-ray source – image data receiving means distance by using the said at least one handle as a reference point in positioning the x-ray source for exposure.

28. A method according to claim 27, wherein the position of the said at least handle on the aiming arm is not fixed and adjusted by arranging a connection between the two such that the handle may be slid along the aiming arm.

29. A method according to claim 28, wherein the x-ray tube is positioned with respect to the said at least one handle by visually using a reference point on the x-ray source housing or any part attached thereto, especially by bringing a contact or connection structure being part of the x-ray source housing or any part attached thereto into contact with the said at least one handle.

30. A method for positioning and aiming an x-ray source with respect to a position of an intra oral image data receiving means, where the image data receiving means is attached to an aiming arm used as an aid in aiming the x-ray beam to the image data receiving means, wherein the aiming arm is further equipped with a handle, which handle is used as a gripping part in maneuvering the aiming arm – sensor holder –assembly and as an aligning tool for aiming the x-ray beam produced by the x-ray source.

31. A method according to claim 30, wherein the x-ray beam is aligned by bringing the x-ray source into contact with a contact construction arranged in the said handle, which is able to create at least two contact points, at least one contact line and /or at least one contact surface with a surface of the x-ray source housing, with that of the collimator and/or with any other part attached to the x-ray source.

32. A method according to claim 30, wherein for the first a desired positioning and aiming assembly containing a desired image data receiving means - sensor holder – aiming arm –assembly, possibly also including a desired bite-block, is put together, after which the image data receiving means is placed in a desired position inside patient's mouth and the x-ray beam aligned and orientated by making the said contact between the said handle and its counter surface or element while keeping the sensor stationary.

33. A method according to claim 30, wherein two handles are arranged on the aiming arm.

34. A method according to claim 30, wherein the contact between the handle and the x-ray device is releasable.

35. A method according to claim 30, wherein the contact is made between the handle and the outer surface of the collimator of the x-ray source or between the handle and an aiming ring of the x-ray source.